

# Plant Genome Research Program (PGRP)

## Collaborative Research on Functional Genomics

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### *Program Solicitation*

***NSF-01-158***

DIRECTORATE FOR BIOLOGICAL SCIENCES

**LETTER OF INTENT DUE DATE(S) (*optional*): November 1, 2001**

**FULL PROPOSAL DEADLINE(S) :**

**January 8, 2002**

**Letters of Intent must be received at NSF by November 1, 2001 and can be faxed to (703) 292-9062, or e-mailed to [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).**



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# SUMMARY OF PROGRAM REQUIREMENTS

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## GENERAL INFORMATION

**Program Title:** Plant Genome Research Program (PGRP)

**Synopsis of Program:** This program is a continuation of the plant genome research program that began in FY1998 (NSF 98-30, NSF99-13, NSF 99-171, and NSF 00-151). The goals of this program are to support research on plant genomics, and to accelerate the acquisition and utilization of new knowledge and innovative approaches to elucidate fundamental biological processes in plants. Continuing the theme of the FY2001 competition, this year's competition focuses on functional genomics, the identification of functions of a pathway or a cluster of genes at a genomic scale, and new informatics tools to disseminate, access and analyze massive dispersed datasets. Also encouraged is development of research resources and tools that would enable a broad community of investigators to participate in plant genome research. NSF is especially looking for proposals that are conceptually new and different from many of the already well-supported on-going projects, as well as for proposals from investigators and institutions who have not participated in this Program in the past. Emphasis is placed on plants of economic importance and plant processes of potential economic value. Research involving lower plants will not be accepted in this program unless specific and compelling justifications are presented.

**Cognizant Program Officer(s):**

- Dr. Jane Silverthorne, Program Director, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).
- Dr. Christopher Cullis, Program Director, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).

**Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):**

- 47.074 --- Biological Sciences

## ELIGIBILITY INFORMATION

- **Organization Limit:** Proposals are invited from U.S. academic institutions, U.S. non-profit research institutions, and consortia of institutions with appropriate research and educational facilities. A proposal from multi-institutional consortia must be submitted by the lead institution as a single proposal. When consortia of eligible individuals or institutions submit a proposal, a single principal investigator must be designated as the project director and a single institution must accept overall management responsibility including the management of intellectual property that may result from the proposed research.

Simultaneous submission of proposals to this program and another federal agency is permissible only with prior written approval of the agencies involved.

- **PI Eligibility Limit:** None
- **Limit on Number of Proposals:** None

## **AWARD INFORMATION**

- **Anticipated Type of Award:** Standard or Continuing Grants or Cooperative Agreements
- **Estimated Number of Awards:** Approximately 15 new awards are anticipated in FY2002
- **Anticipated Funding Amount:** Approximately \$20M is expected to be available for new awards in FY2002

## **PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

### ***A. Proposal Preparation Instructions***

- **Full Proposals:** Deviations From Standard Preparation Guidelines
  - The program announcement/solicitation contains deviations from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full program announcement/solicitation for further information.

### ***B. Budgetary Information***

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:** None.
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full program announcement/solicitation for further information.

### ***C. Deadline/Target Dates***

- **Letters of Intent (*optional*):** November 1, 2001
- **Preliminary Proposals (*optional*):** None
- **Full Proposal Deadline Date(s):**

January 8, 2002

**Letters of Intent** must be received at NSF by November 1, 2001 and can be faxed to (703) 292-9062, or e-mailed to [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).

### ***D. FastLane Requirements***

- **FastLane Submission:** Required
- **FastLane Contact(s):**
  - Sarah Zielinski, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [biofl@nsf.gov](mailto:biofl@nsf.gov).
  - BIO Fastlane, Office of the Assistant Director for Biological Sciences, telephone: (703) 292-8406, e-mail: [biofl@nsf.gov](mailto:biofl@nsf.gov).

## PROPOSAL REVIEW INFORMATION

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full program announcement/solicitation for further information.

## AWARD ADMINISTRATION INFORMATION

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Additional reporting requirements apply. Please see the full program announcement/solicitation for further information.

## **I. INTRODUCTION**

The National Science Foundation (NSF) announces its intent to continue support of plant genome research that began in FY1998 (NSF98-30, NSF99-13, NSF99-171, and NSF00-151). The goals of this program are to support research on plant genomics and to accelerate the acquisition and utilization of new knowledge and innovative approaches to the analysis of fundamental biological processes in plants.

Recent infusion of funds to plant genome research by the agencies participating in the Interagency Working Group on Plant Genomics (for more information, see [http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP\\_Home.html](http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html)) has brought a new level of excitement to the plant science community, producing new information about the biology of plants, promoting new research directions, and attracting new talents to the field. More specifically, research supported under the NSF Plant Genome Research Program (PGRP) in the past four years has provided the community with tools and resources that allow researchers to conduct research in ways that would have been impossible only a few years ago. Continued research in plant genomics is needed to take advantage of the tremendous opportunities opened up by these recent advances and to push the frontiers of plant biology forward, which will facilitate the development of improved plants of economic importance, the elucidation of plant processes with potential economic benefits, and the design of novel plant products.

## **II. PROGRAM DESCRIPTION**

The Plant Genome Research Program (PGRP) supports projects that contribute to our understanding of plant genome structure and function. A systems approach to plant genome research that builds upon recent advances in genomics, bioinformatics, and plant biology is a major characteristic of the PGRP. Emphasis is placed on plants of economic importance and plant processes of potential economic value. Research involving lower plants will not be accepted in this program unless compelling and specific justifications are presented.

Since the initiation of the PGRP in FY1998, many advances have been made in building the plant genome infrastructure, such as new techniques, databases, informatics tools, and biological materials. Continuing the FY2001 theme, this year's competition focuses on functional genomics, including, but not limited to, whole genome expression studies, comparative genomics, evolutionary genomics, studies of networks of genes (metabolic networks, developmental networks, etc.), environmental genomics, proteomics, metabolomics, etc.

Also considered are proposals to develop new techniques, methods, devices, and other research tools that would enable a broad community of scientists to advance the field. Especially urgent are informatics tools to access, analyze, synthesize, and otherwise make use of the massive amounts of data and biological resources available. Currently plant genomics information is so dispersed and so vast that it is difficult to access and analyze by the general research community with the existing bioinformatics tools. In addition, the PGRP will consider well-justified proposals to develop genomics tool kits for economically important plants, such as insertional mutants, various DNA libraries, or large-scale DNA sequencing of specific regions or clones of large plant genomes (e.g., gene-rich regions of a large genome, full-length cDNAs).

NSF encourages new, innovative ideas and approaches that will take the science of plant genomics to the next level. NSF also encourages those institutions and investigators who have not participated in the PGRP activities in the past, to take part in the FY2002 competition. Unconventional ideas and high-risk proposals are also welcome. A list of ongoing projects along with their abstracts awarded under NSF98-30, 99-13, 99-171, and 00-151 can be found at [http://www.nsf.gov/bio/dbi/dbi\\_pgr.htm](http://www.nsf.gov/bio/dbi/dbi_pgr.htm). This information should be consulted to ascertain whether the proposal being contemplated will add something significantly new to the field.

We will continue to consider research on the genomics of plant-associated microbes including fungi, if addressed within the context of host-microbial interactions. The choice of microbe and host plant(s) for study should be clearly justified. Priority will be given to proposals that address the fundamental biology of plant-microbe interactions, both beneficial and detrimental, and microbes associated with economically important plants. Proposals focused solely on microbes are outside the scope of the PGRP. Proposers wishing to include microorganisms are strongly encouraged to contact a Plant Genome Research Program Director for guidance prior to submission.

Proposals that deal with individual genes or gene families should be sent to other BIO programs (consult BIO WebPages - <http://www.nsf.gov/bio/>). Plant genomics proposals with a focus on *Arabidopsis* should be sent to the 2010 Project. Proposals to sequence plant-associated microbes should be sent to the NSF/USDA Joint Program on Microbial Sequencing ( <http://www.reeusda.gov/1700/microbialgenomic/microbialgenomics.htm> ). NSF will not transfer proposals submitted to the PGRP to other programs because the PGRP proposal format is not compatible with the requirements for other NSF programs. You are encouraged to consult a plant genome program officer if you are uncertain about the appropriateness of your proposal to the PGRP.

Simultaneous submission of proposals to this program and another federal agency is permissible only with prior written approval of the agencies involved.

### **Additional Considerations**

In developing a proposal for submission to this Program, proposers should consider the issues listed below in addition to the goals described above:

**(1)** Given the complexity of research efforts in plant genomics, it is anticipated, although not required, that many projects will be multi-faceted and require a group of collaborating investigators with different perspectives and expertise. These collaborative efforts must be designed to advance the field beyond what might be possible through separate, independently conducted projects. Each member of such a collaborative group must be selected carefully so that he/she will bring a unique element to the project, resulting in a whole that is greater than the sum of its parts. Especially encouraged is an inclusion of investigators and institutions who have not participated in the PGRP activities in the past.

A group proposal is not a requirement nor a preference by the PGRP. Multi-institutions are not required for group proposals. If the proposed activity is more efficiently carried out by a single laboratory, a single-investigator proposal should be submitted. New investigators are also welcome.

**(2)** Proposals may include, or be primarily, a community service project such as a multi-user facility for the analysis and distribution of biological materials. In such cases, the facility must be justified in terms of potential demand, efficiency, and cost-effectiveness. In addition, plans for continued operation of such a facility beyond the initial award period should be described without assuming long-term NSF support. A Management Plan for such proposals will be an important factor in their review.

**(3)** Activities supported by this Program should provide an ideal environment for training young scientists in modern research technologies, introducing them to new paradigms in plant biology, and promoting increased participation by members of under-represented groups. All proposals are expected to integrate research and education.

An institution or a group of investigators wishing to establish a graduate research training program with a focus on plant genomics should apply to the Integrative Graduate Education and Research Traineeship (IGERT) Program at NSF. The program announcement for the 2000-2001 IGERT competition is located at [www.nsf.gov/cgi-bin/getpub?nsf0078](http://www.nsf.gov/cgi-bin/getpub?nsf0078). Future program announcements will be published on the NSF Homepage ([www.nsf.gov](http://www.nsf.gov)).

As in FY2001, the PGRP will accept supplemental proposals from a group of investigators at an institution where multiple PGRP awards are located to establish an undergraduate research training program in plant genomics. An eligible institution must submit a single coordinated plan designating one of the investigators as the PI for the supplemental request. The undergraduate research training program could be a year-round program or a summer-only program, but at least a half of participants must come from predominantly undergraduate institutions, minority-serving institutions, or community colleges. Educational, training activities must be well integrated with the research being funded by the PGRP.

A request for an REU supplement to an existing NSF award is submitted via FastLane. After login to FastLane, choose Award and Reporting Functions, then Supplemental Funding Request. Next choose the award to be supplemented. In the form entitled Summary of Proposed Work, state simply that this is a request for an REU supplement. In the form entitled Justification for Supplement, include the information enumerated in paragraph one above, limited to 3 pages. Prepare a budget, including a justification of the funds requested for student support and their proposed use. All student costs are entered under line F as participant support costs. An administrative allowance (limited to 25% of participant stipend support only) is allowed for REU awards in lieu of indirect costs (enter at line I of the proposal budget). The term of an REU supplement may not exceed that of the underlying research project. The request is then forwarded to the institution's Authorized Organizational Representative for submission to NSF.

**(4)** Issues related to the societal impact of plant genome research should be addressed as an integral part of a proposal when appropriate. These issues could be integrated into research (e.g., studies on horizontal gene transmission at a genomic scale, the genome-wide basis of pesticide resistance, development of selectable markers for transformation studies), or into the education and outreach activity to communicate the significance of the outcomes of plant genome research to society.

**(5)** Plant genome research is actively pursued all over the world, and NSF encourages international research collaboration. When applicable, proposed research activities should be coordinated with similar efforts in other countries to maximize efficiency and avoid unnecessary duplication of effort. However, foreign participants should secure support for their component of the collaboration from their own national programs.



(6) Private industry has already made a significant investment in plant genomic research. Innovative collaborations with industry are encouraged when they advance the goals of the PGRP. However, NSF funds may not be used to support the industrial collaborators. The PI is strongly encouraged to contact a Program Director for guidance on how intellectual property issues should be handled.

### **III. ELIGIBILITY INFORMATION**

Proposals are invited from U.S. academic institutions, U.S. non-profit research institutions, and consortia of institutions with appropriate research and educational facilities. A proposal from multi-institutional consortia must be submitted by the lead institution as a single proposal. When consortia of eligible individuals or institutions submit a proposal, a single principal investigator must be designated as the project director and a single institution must accept overall management responsibility including the management of intellectual property that may result from the proposed research.

### **IV. AWARD INFORMATION**

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

It is anticipated that approximately \$20 million will be available for new awards in FY 2002, pending availability of funds. Projects will be supported at award levels up to \$1 million per year for up to five years. If the requested levels are higher, it is incumbent upon the proposer to provide a justification in more detail than what is required by GPG. Award levels will likely be less for proposals that involve proof of concept or method/technique/device development. NSF is fully committed to provide sufficient funds to complete a project the PGRP supports. A careful and realistic budget request will add to overall strength of a proposal.

Funding decisions are expected to be made by the end of June 2002 with awards expected to start in August 2002. Awards will be made either as standard or continuing grants or cooperative agreements.

### **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

#### **A. Proposal Preparation Instructions**

##### **Full Proposal:**

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Web Site at: <http://www.nsf.gov/cgi-bin/getpub?gpg>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

Potential applicants are strongly encouraged to contact the PGRP and consult Program Directors prior to preparation of proposals.

**Letter of Intent:**

Applicants are strongly encouraged to submit a letter of intent before submitting a full proposal. This letter should consist of three parts: (1) a descriptive title of the proposed project; (2) names and roles of the principal investigator and other senior personnel (Co-PIs and Collaborators) along with their institutions; and (3) a brief statement of scientific approaches and objectives (500 words or less). This information will be used by NSF staff in planning the review process. Because letters of intent will not be distributed for peer review, there will be no feedback from NSF staff regarding the content of these letters. See "Deadline/Target Dates" section of this Program Announcement for specific instructions.

**Full Proposals:**

Proposals must be submitted by FastLane (see "FastLane Requirements" section below) and must follow guidelines described in the GPG (NSF#01-2). The following exceptions and additions apply to proposals submitted to this Program:

**Proposal Cover Sheet (NSF Form 1207):** In the NSF FastLane system, follow instructions on proposal preparation. When completing the Cover Sheet, click on the GO button at "Program Announcement /Solicitation / Program Description No." Highlight NSF 01-xxx Plant Genome Research Project and click on the Select button. Your proposal will automatically be assigned to DBI– Plant Genome Research Project. You must "Go Back" to the Cover Sheet Components Form and complete the remainder of the cover sheet.

**BIO Proposal Classification Form (PCF):** Complete the BIO PCF, available on the NSF FastLane system. The PCF is an on-line coding system that allows the Principal Investigator to characterize his/her project when submitting proposals to the Directorate for Biological Sciences. Once a PI begins preparation of his/her proposal in the NSF FastLane system, selects any program within the Directorate for Biological Sciences as the first or only organizational unit to review the proposal, and saves the cover sheet, the PCF will be generated and available through the Form Preparation screen. Additional information about the BIO PCF is available in FastLane at <http://www.fastlane.nsf.gov/a1/BioInstr.htm>.

**Project Summary (1 page):** The project summary should consist of two parts in the following order: (1) a list of senior personnel (PI, Co-PIs, key-collaborators) along with their home institutions; and (2) a summary of the proposed project in 500 words or less.

**Project Description (maximum 20 pages including figures and tables):** In addition to the standard description in GPG, the following guidelines should be followed:

- Results from Prior NSF Support (up to 5 pages): Only most relevant prior awards should be listed in this section and for any of the applicable PI's and Co-PI's listed in "Project Summary". In addition to results from the relevant NSF awards, results from any closely related awards from the Federal government should be described if applicable.
- Relevance and justification: Briefly, but explicitly explain the relevance of the proposed research to the stated goals of the PGRP. Justification for the proposed project should include a clear statement about the importance of the project in terms of the utility of the outcomes, and the target community of beneficiaries.

- **Informatics:** Include a detailed description of all informatics components of the project. This section should describe the informatics tools used for internal data management as well as the distribution of information to the scientific community. Technical descriptions must be sufficiently detailed to allow adequate review by informatics experts. All data must be rapidly released to the public in an accessible and useable form. If project includes development of a new database or expansion of an existing database, a plan for its long-term maintenance must be described.
- **Roles of Participants:** For multi-investigator projects, an indication of each investigator's role should be described at appropriate points in the project description. A table summarizing the role of each investigator in the proposed activities would greatly facilitate the reviewers' understanding of how the proposed project makes a coherent whole that is greater than the sum of its parts.
- **Project Timetable:** A project time-table with yearly goals should include benchmarks and expected dates of release of outcomes.
- **Training and Diversity:** The following items must be included: (1) a well designed plan to increase participation of members of under-represented groups that is specific to the proposed project, (2) an education plan, which can be (but is not limited to) a training plan for students at all levels, or an outreach activity for secondary school teachers and students, or a workshop to train other researchers in new concepts or techniques being developed by the project, and (3) a description of how the plans are integrated with the proposed research plan. Simply describing general policies and efforts at the investigators' institutions will not be sufficient.
- **Service Component (if applicable):** If the proposal includes a service component such as a multi-user facility, describe how activities within the facility will be managed, how quality will be controlled, how community input will be solicited, and what methods will be used to make the community aware of the service to be rendered. The plan should also document institutional commitment to the facility, user fees, and plans for long-term support.
- **Color Images (if applicable):** Be advised that NSF cannot accommodate the printing of color images as part of proposal submission through the FastLane system, and submitted proposals that require the use of color or of very high resolution photographic images will necessitate additional steps. (See GPG Chapter I, Section E.1 "Special Instructions for....")

### **Proposal Budget:**

Provide a summary budget and a yearly budget for the duration of the proposed project. When subawards are involved, summary and yearly budgets are required for each subaward. Budget justification should be provided. For salaries of PI's and CoPI's, please consult GPG Chapter II C.b.a. A careful and realistic budget will add to overall strength of a proposal. Funds for facility construction or renovation may not be requested. Funds to cover the cost of the PI and at least one additional person to attend each year's annual awardee meeting should be requested.

**Biographical Sketches:**

Provide the information requested in the GPG, Chapter II, Section C.5. for all senior personnel.

**Special Information and Supplementary Documentation:**

With the exception of (A-4)"conflict of interest document" which should be sent directly to the PGRP, include the following materials in addition to the 20 page Project Description. Additional materials should be clearly labeled and included in the Supplementary Documents section of FastLane.

**(A-1) Sharing of Results and Management of Intellectual Property:** Describe (3 pages max) the management of intellectual property rights related to the proposed project, including plans for sharing data, information, and materials resulting from the award. This plan must be specific about the nature of the results to be shared, the timing and means of release, and any constraints on release. The proposed plan must take into consideration the following conditions where applicable:

- Sequences resulting from high-throughput large-scale sequencing projects (low pass whole genome sequencing, BAC end sequencing, EST's, full-length cDNA sequencing, etc.) must be released according to the currently accepted community standard (e.g. Bermuda agreement) to public databases (GenBank if applicable), as soon as they are assembled and quality checked based on a stated, pre-determined quality standard.
- If the project is supported to produce community resources (biological materials, software, etc.), NSF encourages that they be made available as soon as their quality is checked to satisfy the specifications approved prior to funding. The timing of release should be clearly stated in the proposal. They must be available to all segments of the scientific community. A reasonable charge is permissible, but the fee structure must be clearly outlined in the proposal. If accessibility differs between industry and the academic community, the differences must be clearly spelled out. If a MTA is required, it must be described clearly.
- When the project involves the use of proprietary data or materials, the data or materials resulting from NSF-funded research must be freely available without any restrictions to the users of such data or materials (no reach through rights).
- Budgeting and planning for short-term and long-term distribution of the project outcomes must be described in the proposal. If a fee is to be charged for distribution of project outcomes, its details should be clearly described in the proposal.
- In case of a multi-institutional proposal, the lead institution is responsible for coordinating and managing the intellectual property resulting from the PGRP award. Institutions participating in multi-institutions projects are strongly encouraged to formulate a coherent plan for the project prior to submission of the proposal.

**(A-2) Management Plan (3 pages maximum):** Each project involving multiple investigators or a community service component, must provide an additional description of the management plan for coordinating activities of the group or the management of the service aspect. This description should include plans for internal means of communication, coordinating data and information management, evaluating and assessing progress, allocating funds and personnel, interacting with the customers in a service project, and other relevant issues specific to the proposed activities. The overall leader must be identified and his/her role should be described. For a complex project, appointment of a project manager/administrator is strongly encouraged. The NSF also encourages appointment of an outreach/education coordinator. A postdoctoral fellow or a senior graduate student interested in education and outreach activities could be appointed to this role. The exact time commitment of each key member to the project should be indicated in the management plan, regardless of the request for his/her salary from NSF. A project timetable with yearly goals should be included for all projects, regardless of number of personnel involved. IF NOT APPLICABLE, PLEASE SO INDICATE.

**(A-3) Coordination with Outside Groups (Maximum 2 pages excluding letters of collaboration):** If the proposed activity is part of a national or international collaborative project, describe the relationship of the proposed activity to the overall collaborative project and how the components will be coordinated. IF NOT APPLICABLE, PLEASE SO INDICATE.

**(A-4) A conflict of interest document** should be sent directly to the Plant Genome Research Program via E-mail (dbipgr@nsf.gov) within a week of the proposal submission deadline. Include a table, in the format shown below, that lists the names of people with conflicts of interest for all senior personnel (PI and Co-PIs) and any named personnel whose salary is requested in the project budget. Conflicts to be identified are: (1) Ph.D. thesis advisor or advisee, (2) postdoctoral advisor or advisee, (3) collaborators or co-authors for the past 48 months, and (4) any other individual or institution with which the investigator has financial ties (please specify). Organize the information as shown in the table below. List full names in each column in alphabetical order:

Last Name	First Name Initial(s)	Conflict Type
Apple	Alison A.	Ph.D. advisor for PI(Name)
Barlev	Barry B.	Collaborator for Co-PI1(Name)
Rasberrv	Rudy R.	Financial ties for Co-PI2(Name)

Provide only the allowable and applicable items as noted in the GPG, Chapter II, Section C.9. Include the materials in the FastLane submission by transferring them as .PDF files through the "Supplementary Docs" module of the FastLane system.

Any material not specifically requested or in excess of the page allowances will be discarded prior to review. It is the PI's responsibility to ensure that the proposal is compliant with the guidelines. Non-compliant proposals may be returned without review.

## Single Copy Document

Please note that key project personnel may be required, prior to an award decision, to submit copies of any intellectual property agreements or material transfer agreements they have signed, or are planning to sign, that would impact the unrestricted and timely distribution of the outcomes of the NSF-funded research. Submitting a Single Copy Document will have these documents reviewed by the NSF officials only, and will remain confidential.

Proposers are reminded to identify the program solicitation number (NSF-01-158) in the program announcement/solicitation block on the proposal Cover Sheet (NSF Form 1207). Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

## B. Budgetary Information

Cost sharing is not required in proposals submitted under this Program Solicitation.

***Indirect Cost (F&A) Limitations:*** None.

***Other Budgetary Limitations:*** Projects will be supported at award levels up to \$1 million per year for up to five years. If the requested levels are higher, it is incumbent upon the proposer to provide a justification in more detail than what is required by GPG.

## C. Deadline/Target Dates

Proposals must be submitted by the following date(s):

**Letters of Intent (*optional*):** November 1, 2001

**Full Proposals by 5:00 PM local time:** January 8, 2002

**Letters of Intent** must be received at NSF by November 1, 2001 and can be faxed to (703) 292-9062, or e-mailed to [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).

## D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this Program Solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <http://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov).

***Submission of Signed Cover Sheets.*** The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see [Chapter II, Section C](#) of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane website at: <http://www.fastlane.nsf.gov>.

## VI. PROPOSAL REVIEW INFORMATION

### A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

Proposals will be reviewed against the following general review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal and for which he/she is qualified to make judgements.

#### **What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

#### **What are the broader impacts of the proposed activity?**

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Principal Investigators should address the following elements in their proposal to provide reviewers with the information necessary to respond fully to both of the above-described NSF merit review criteria. NSF staff will give these elements careful consideration in making funding decisions.

#### ***Integration of Research and Education***

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

### ***Integrating Diversity into NSF Programs, Projects, and Activities***

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

#### **Additional Review Criteria**

Reviewers will evaluate how well the applicant has addressed the issues outlined in the "Program Description" and "Proposal Preparation Instruction" sections of this program announcement. Reviewers will also evaluate how well the proposal justifies its impact on broader plant genome research.

A summary rating and accompanying narrative will be completed and signed by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

#### **B. Review Protocol and Associated Customer Service Standard**

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc and Panel review. Site visits may be conducted if necessary.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 70 percent of proposals. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at its own risk.



## **VII. AWARD ADMINISTRATION INFORMATION**

### **A. Notification of the Award**

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

### **B. Award Conditions**

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1)\* or Federal Demonstration Partnership (FDP) Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

\*These documents may be accessed electronically on NSF's Web site at [http://www.nsf.gov/home/grants/grants\\_gac.htm](http://www.nsf.gov/home/grants/grants_gac.htm). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Web site at <http://www.nsf.gov/cgi-bin/getpub?gpm>. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Web site at <http://www.gpo.gov>.

### **C. Reporting Requirements**

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

All successful PI's are required to attend the annual Plant Genome Research Program's awardees meeting at a date and place to be specified by NSF, during the tenure of the award. Cooperative Agreements reporting requirements will be stipulated in the agreement.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented an electronic project reporting system, available through FastLane. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

## **VIII. CONTACTS FOR ADDITIONAL INFORMATION**

General inquiries regarding Plant Genome Research Program (PGRP) should be made to:

- Dr. Jane Silverthorne, Program Director, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).
- Dr. Christopher Cullis, Program Director, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [dbipgr@nsf.gov](mailto:dbipgr@nsf.gov).

For questions related to the use of FastLane, contact:

- Sarah Zielinski, Division of Biological Infrastructure, telephone: (703) 292-8470, e-mail: [biofl@nsf.gov](mailto:biofl@nsf.gov).
- BIO Fastlane, Office of the Assistant Director for Biological Sciences, telephone: (703) 292-8406, e-mail: [biofl@nsf.gov](mailto:biofl@nsf.gov).

## **IX. OTHER PROGRAMS OF INTEREST**

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF [E-Bulletin](#), which is updated daily on the NSF web site at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's [Custom News Service](#) (<http://www.nsf.gov/home/cns/start.htm>) to be notified of new funding opportunities that become available.

## **ABOUT THE NATIONAL SCIENCE FOUNDATION**

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement/solicitation for further information.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090, FIRS at 1-800-877-8339.

The National Science Foundation is committed to making all of the information we publish easy to understand. If you have a suggestion about how to improve the clarity of this document or other NSF-published materials, please contact us at [plainlanguage@nsf.gov](mailto:plainlanguage@nsf.gov).

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Pursuant to 5 CFR 1320.5(b), an agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Information Dissemination Branch, Division of Administrative Services, National Science Foundation, Arlington, VA 22230, or to Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for National Science Foundation (3145-0058), 725 17th Street, N.W. Room 10235, Washington, D.C. 20503.

*OMB control number:* 3145-0058.